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**PATENT** 10/028,643

JUL 2 7 2004 =

### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

blicant:

Kie Y. Ahn et al.

Examiner: Long Pham

erial No.:

10/028,643

Group Art Unit: 2814

Filed:

December 20, 2001

Docket: 1303.030US1

Title:

LOW-TEMPERATURE GROWN HIGH QUALITY ULTRA-THIN COTIO3

**GATE DIELECTRICS** 

### **COMMUNICATION CONCERNING RELATED APPLICATION(S)**

**Commissioner for Patents** P.O. Box 1450 Alexandria, VA 22313-1450

Applicants would like to bring to the Examiner's attention the following related application(s) in the above-identified patent application:

| Serial/Patent No. 09/944981 | Filing Date August 30, 2001 | Attorney Docket<br>1303.021US1 | Title GATE OXIDES AND METHODS OF FORMING                                              |
|-----------------------------|-----------------------------|--------------------------------|---------------------------------------------------------------------------------------|
| 09/945535                   | August 30,<br>2001          | 1303.026US1                    | HIGHLY RELIABLE AMORPHOUS<br>HIGH-K GATE OXIDE ZrO2                                   |
| 10/052983<br>6767795        | January 17,<br>2002         | 1303.031US1                    | HIGHLY RELIABLE AMORPHOUS<br>HIGH-k GATE DIELECTRIC ZrOxNy                            |
| 10/027315<br>6740581        | December 20, 2001           | 1303.033US1                    | LOW-TEMPERATURE GROWN HIGH-<br>QUALITY ULTRA-THIN<br>PRASEODYMIUM GATE<br>DIELECTRICS |
| 10/099194                   | March 13, 2002              | 1303.044US1                    | EVAPORATION OF Y-Si-O FILMS FOR MEDIUM-k DIELETRICS                                   |
| 10/081439                   | February 20, 2002           | 1303.046US1                    | EVAPORATED LaAIO3 FILMS FOR GATE DIELECTRICS                                          |
| 10/137499                   | May 2,<br>2002              | 1303.050US1                    | ATOMIC LAYER-DEPOSITED LaAlO3 FILMS FOR GATE DIELETRICS                               |
| 10/163481                   | June 5,<br>2002             | 1303.056US1                    | ATOMIC LAYER-DEPOSITED HfAIO3 FILMS FOR GATE DIELECTRICS                              |

COMMUNICATION CONCERNING RELATED APPLICATIONS
Serial Number: 10/028,643
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Title: LOW-TEMPERATURE GROWN HIGH QUALITY ULTRA-THIN COTIO3 GATE DIELECTRICS

Page 2 Dkt: 1303.030US1

| 10/163686 | June 5,<br>2002    | 1303.059US1 | Pr2O3-BASED La-oxide GATE DIELECTRICS                                             |
|-----------|--------------------|-------------|-----------------------------------------------------------------------------------|
| 10/209581 | July 30,<br>2002   | 1303.061US1 | ATOMIC LAYER DEPOSITED<br>NANOLAMINATES OF HfO2/ZrO2<br>FILMS AS GATE DIELECTRICS |
| 10/219870 | August 15,<br>2002 | 1303.069US1 | LANTHANIDE DOPED TiOx<br>DIELECTRIC FILMS BY PLASMA<br>OXIDATION                  |
| 10/219878 | August 15, 2002    | 1303.070US1 | LANTHANIDE DOPED TiOx<br>DIELECTRIC FILMS                                         |
| 10/229903 | August 28, 2002    | 1303.078US1 | ATOMIC LAYER DEPOSITED HISION DIELECTRIC FILMS                                    |
| 10/233309 | August 29,<br>2002 | 1303.079US1 | ATOMIC LAYER DEPOSITED<br>LANTHANIDE DOPED TIOX<br>DIELECTRIC FILMS               |
| 10/309583 | December 4, 2002   | 1303.082US1 | ATOMIC LAYER DEPOSITED ZR-SN-<br>TI-O FILMS USING TiI4                            |
| 10/309935 | December 4, 2002   | 1303.083US1 | ATOMIC LAYER DEPOSITED Zr-Sn-Ti-O FILMS                                           |
| 10/379470 | March 4,<br>2003   | 1303.090US1 | ATOMIC LAYER DEPOSITED DIELECTRIC LAYERS                                          |
| 10/403734 | March 31,<br>2003  | 1303.092US1 | ATOMIC LAYER DEPOSITED ZrAlxOy<br>DIELECTRIC LAYERS                               |
| 10/420307 | April 22,<br>2003  | 1303.097US1 | ATOMIC LAYER DEPOSITED ZrTiO4<br>FILMS                                            |
| 10/602323 | June 24,<br>2003   | 1303.101US1 | LANTHANIDE OXIDE / HAFNIUM<br>OXIDE DIELECTRIC LAYERS                             |
| 10/602315 | June 24,<br>2003   | 1303.107US1 | LANTHANIDE OXIDE / HAFNIUM<br>OXIDE DIELECTRICS                                   |

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Serial Number: 10/028,643 Filing Date: December 20, 2001

Title: LOW-TEMPERATURE GROWN HIGH QUALITY ULTRA-THIN COTIO3 GATE DIELECTRICS

Dkt: 1303.030US1

| 09/779959<br>09/838335 | February 9,<br>2001<br>April 20,<br>2001 |             |                                                                                    |
|------------------------|------------------------------------------|-------------|------------------------------------------------------------------------------------|
| 09/881408              | June 13,<br>2001                         |             |                                                                                    |
| 09/908/767             | July 18,<br>2001                         |             |                                                                                    |
| 10/765619              | January 27,<br>2004                      | 1303.033US2 | LOW-TEMPERATURE GROWN HIGH-<br>QUALITY ULTRA-THIN<br>PRASEODYMIUM GATE DIELECTRICS |
| 10/768597              | January 30,<br>2004                      | 1303.033US3 | LOW-TEMPERATURE GROWN HIGH-<br>QUALITY ULTRA-THIN<br>PRASEODYMIUM GATE DIELECTRICS |
| 10/789042              | February<br>27, 2004                     | 1303.050US2 | ATOMIC LAYER-DEPOSITED LaAlO3 FILMS FOR GATE DIELETRICS                            |
| 10/789044              | February<br>27, 2004                     | 1303.070US2 | LANTHANIDE DOPED TiOx DIELECTRIC FILMS                                             |
| 10/863953              | June 9,<br>2004                          | 1303.031US2 | HIGHLY RELIABLE AMORPHOUS HIGH-<br>k GATE DIELECTRIC ZrOxNy                        |

Respectfully submitted,

KIE Y. AHN ET AL.

By Applicants' Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

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Date 1-23-07

David C. Peterson

Reg. No. 47,857

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 24th day of July, 2004.



**PATENT** 

#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Kie Y. Ahn et al.

Examiner:

Long Pham

Serial No.:

10/028,643

Group Art Unit:

2814

Filed:

December 20, 2001

Docket:

1303.030US1

Title:

LOW-TEMPERATURE GROWN HIGH QUALITY ULTRA-THIN CoTiO3 GATE

**DIELECTRICS** 

#### INFORMATION DISCLOSURE STATEMENT

MS RCE Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 et. seq., the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement.

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

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By their Representatives,

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Date 7.23.09

Ву

David C. Peterson Reg. No. 47,857

<u>CERTIFICATE UNDER 37 CFR 1.8:</u> The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this <u>24th</u> day of July, 2004.

Amy Moriarty

Signature

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)

| Complete if Known    |                   |
|----------------------|-------------------|
| Application Number   | 10/028,643        |
| Filing Date          | December 20, 2001 |
| First Named Inventor | Ahn, Kie          |
| Group Art Unit       | 2814              |
| Examiner Name        | Pham, Long        |

Sheet 1 of 1

Attorney Docket No: 1303.030US1

|                    | A MADE              |                  |                                                    |       |          |                               |
|--------------------|---------------------|------------------|----------------------------------------------------|-------|----------|-------------------------------|
|                    |                     | US PA            | ATENT DOCUMENT                                     | S     |          |                               |
| Examiner Initial * | USP Document Number | Publication Date | Name of Patentee or<br>Applicant of cited Document | Class | Subclass | Filing Date<br>If Appropriate |
| <u> </u>           | US20020192974       | 12/19/2002       | Ahn, Kie Y., et al.                                | 438   | 722      | 06/13/2001                    |
|                    | US20020111001       | 08/15/2002       | Ahn, Kie Y., et al.                                | 438   | 592      | 02/09/2001                    |
|                    | US20030003702       | 01/02/2003       | Ahn, Kie Y., et al.                                | 438   | 591      | 08/26/2002                    |
|                    | US20030157764       | 08/21/2003       | Ahn, Kie Y., et al.                                | 438   | 212      | 02/20/2002                    |
| -                  | US20030228747       | 12/11/2003       | Ahn, Kie Y., et al.                                | 438   | 591      | 06/05/2002                    |
|                    | US20040033681       | 02/19/2004       | Ahn, Kie Y., et al.                                | 438   | 591      | 08/15/2002                    |
| ,                  | US20040033701A1     | 02/19/2004       | Ahn, K. Y., et al.                                 | 438   | 785      | 08/15/2002                    |
|                    | US20040065255A1     | 04/08/2004       | Yang, M. X., et al.                                | 118   | 715      | 01/31/2003                    |
|                    | US-6,531,354        | 03/11/2003       | Maria, J., et al.                                  | 438   | 216      | 01/17/2001                    |
|                    | US-6,608,378        | 08/19/2003       | Ahn, Kie Y., et al.                                | 257   | 701      | 08/26/2002                    |
|                    | US-6,661,058        | 12/09/2003       | Ahn, Kie Y., et al.                                | 257   | 344      | 02/11/2002                    |

**EXAMINER**